March 16th City Council Presentation

SR 141 at State Bridge Road

Innovative Intersection Concept Evaluations

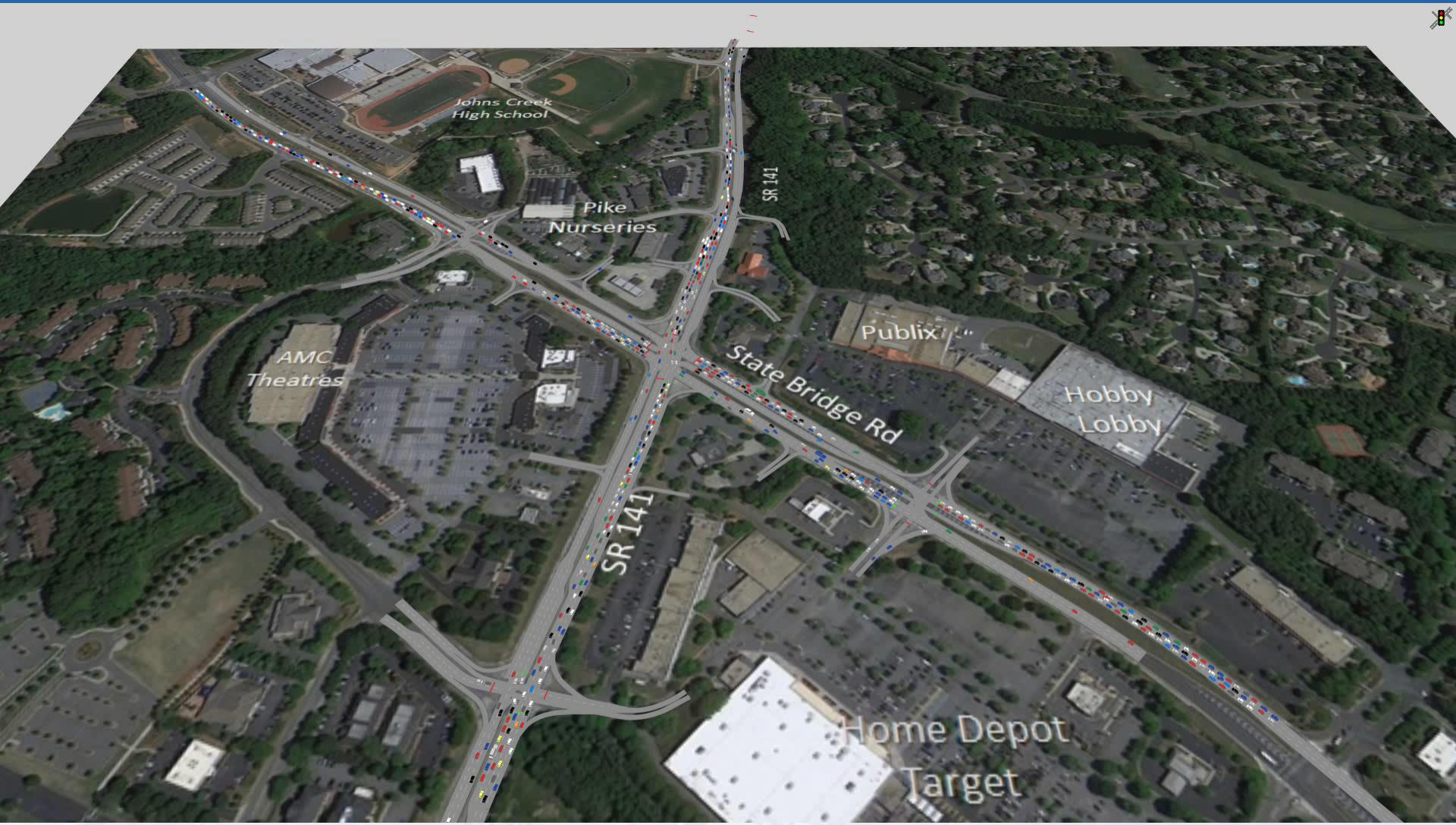
Presented to: Johns Creek

Presented by: PARSONS BRINCKERHOFF

SR 141 / State Bridge Issues

- Both roads important routes for through and local traffic
- One of worst intersections in the City / North Fulton
- Rush hour back-ups extend through multiple signals
- “Conventional fixes” (time lights, add turn bays) exhausted

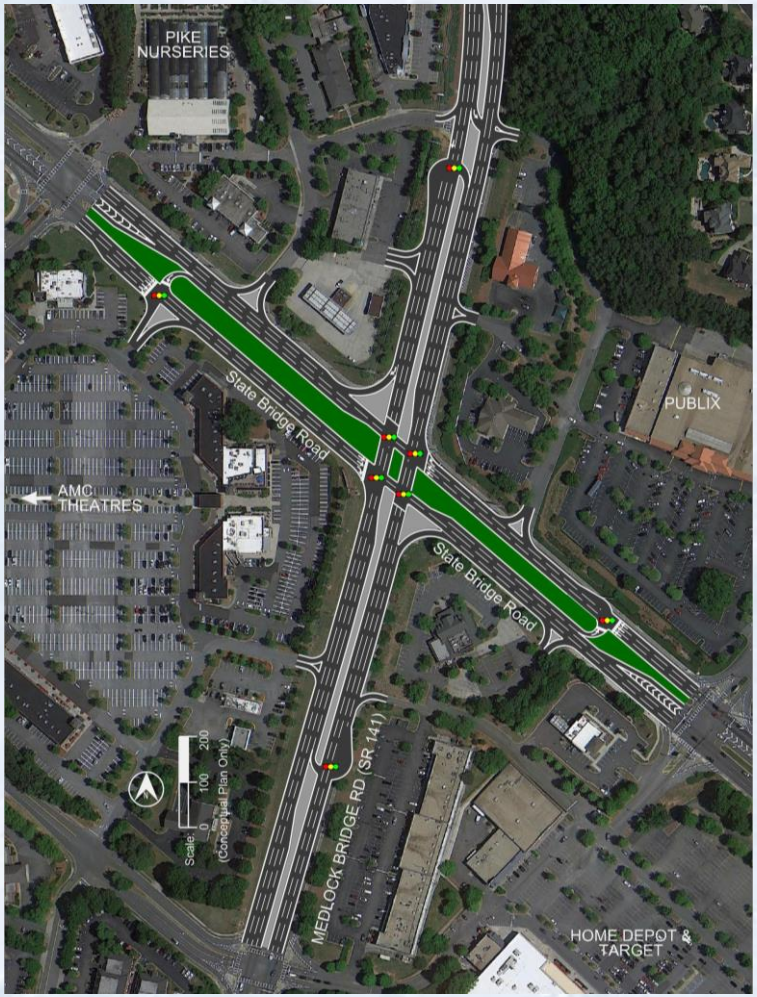
2015 PM Rush Hour Congestion

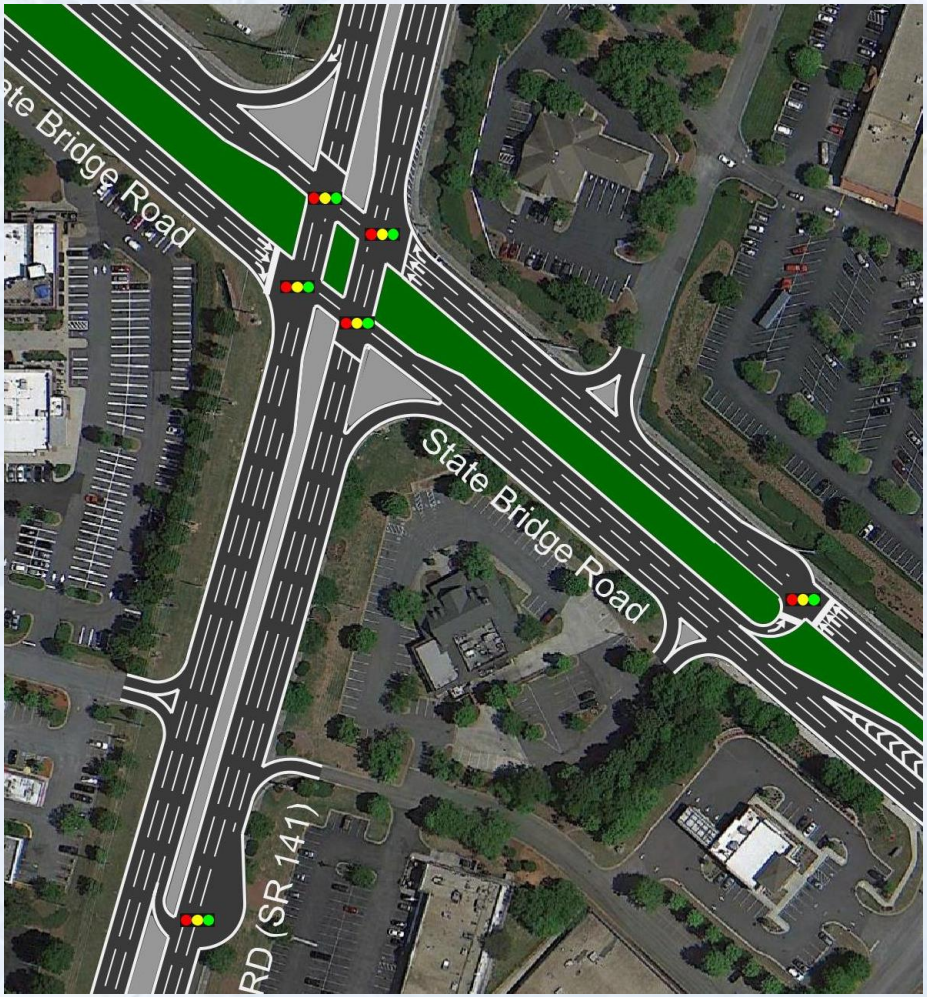


Innovative Solutions: ThrU Intersection

- Re-routed left turns pass through intersection, make U-turn, then turn right (indirect lefts)
- Eliminates left turn signal; more green time for throughs
- Used heavily in MI where wide corridors were planned
- Newer designs with narrow medians in UT and AZ

Innovative Solutions: ThrU Intersection





2015 PM Rush Hour w/ThrU Concept

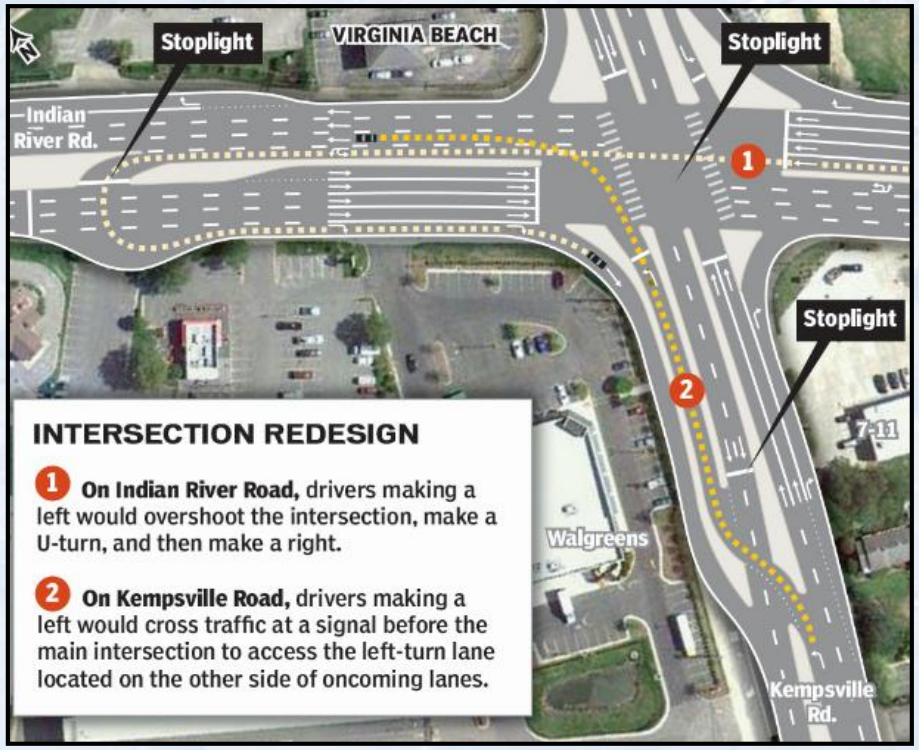
Innovative Solutions: Continuous Flow

- In Continuous Flow Intersection (CFI) left turns crossover in advance of main intersection, then proceed with through cars
- Several successful CFI's built in US

SR 3500 South @ Bangerter Highway, Salt Lake City UT

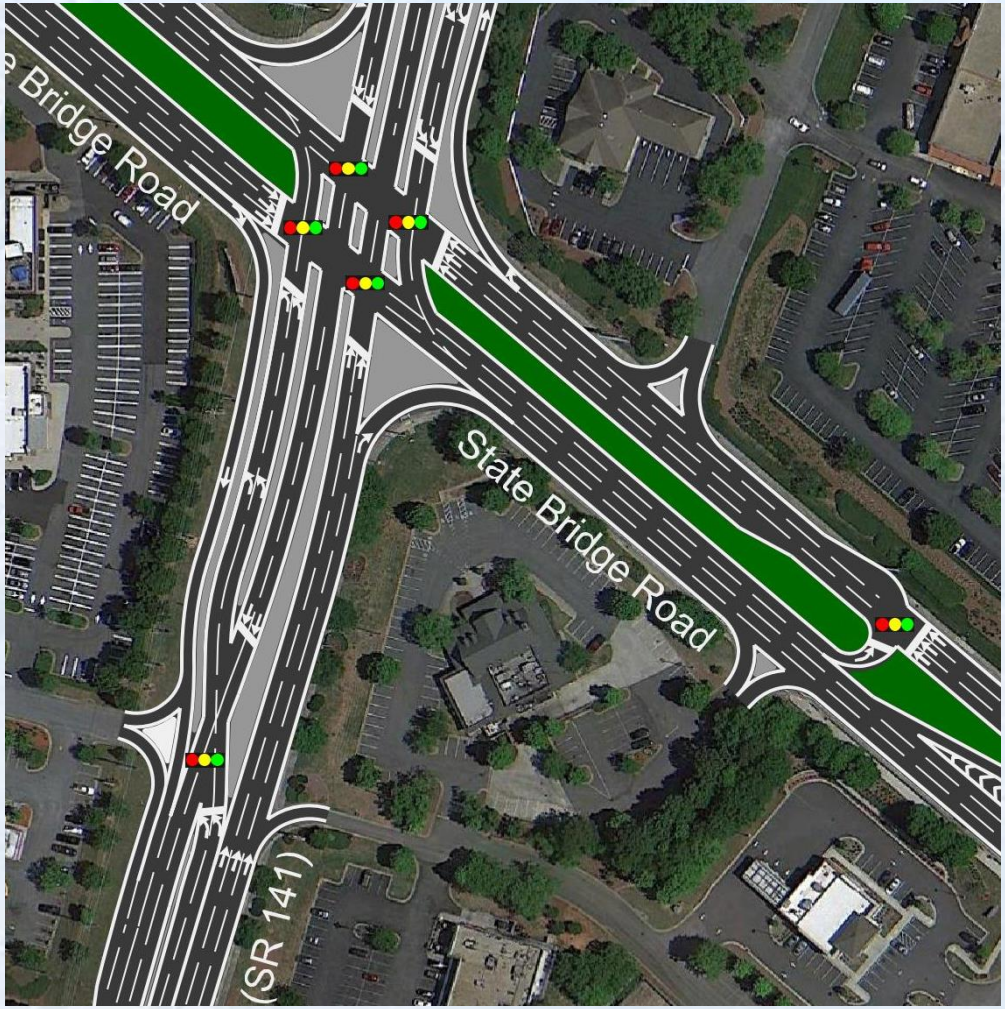
Innovative Solutions: ThrU/CFI Hybrid

- **Hybrid** concept pairs ThrU concept on one roadway with Continuous Flow concept on other roadway
- First hybrid in US to be open in 2017 (Virginia Beach)
- Similar characteristics to 141/State Bridge intersection
  - Wide median on State Bridge for ThrU
  - Continuous Flow fits on narrower SR 141



Indian River at Kempsville Road, Virginia Beach VA

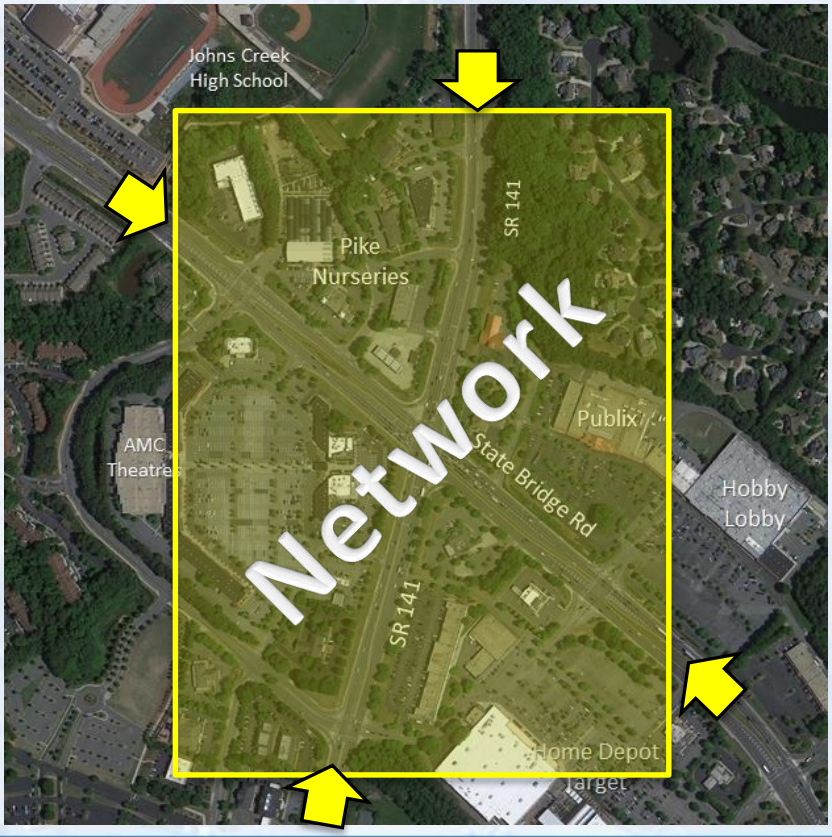
Innovative Solutions: Hybrid



2015 PM Rush Hour w/Hybrid Concept

Operations Analysis Results

- Comparison of overall network delay per vehicle and vehicles served during AM (PM) rush hours



Operations Analysis Results

- Comparison of overall network delay per vehicle and vehicles served during AM (PM) rush hours

Metric / Scenario	Existing Conditions	ThrU Intersections	Hybrid
Average AM (PM) Delay/veh, sec	224 (202)	58 (57) -74% (-71%)	138 (119) -39% (-41%)
Total Number of Vehicles Served	9,609 (9,987)	10,810 (11,323) 12% (13%)	10,206 (10,360) 6% (4%)

Comparative Analysis

Concept	Pros	Cons
No Build	• No capital cost • Conventional design	• Current traffic delays excessive • Future traffic will only worsen • Congestion restricts business growth/health
ThrU Intersection	• Reduce delay +/- 70% • New but consistent design • Retains or improves access • Wide median gives flexibility • Minimal parcel/ROW impacts	• Less than desired ROW on SR141 for U-turns • Makes downstream intersections more critical
Hybrid Intersection	• Reduce delay +/- 40% • Few parcel/ROW impacts	• More complex concept • Some loss/change in access • Limits expansion flexibility

Next Steps

- City review and adopt option(s)
- City submit concept, traffic study results, meet w/GDOT
- Public involvement process
- Project funding:
  - Wait and see on House Bill 170
  - Ballpark estimate of $2-4M for design and construction
  - Eligible as GDOT quick response project? (up to $3M)
  - With local funds, could be open to traffic in late 2016 compared to 2018 using federal funds